

## CLAIMS

1. A rotary atomizing head type coating machine,  
including a rotary atomizing head for spraying supplied paint,  
an air motor coupled with said rotary atomizing head and  
5 rotated by a supply of air, a speed sensor adapted to detect  
rotational speed of said air motor, an air source for  
supplying an air to said air motor, an electropneumatic  
converter adapted to adjust an air pressure supplied from said  
air source according to an electrical quantity, and a  
10 controller adapted to control an electrical quantity to be  
output to said electropneumatic converter in such a way as to  
diminish a differential between said rotational speed detected  
by said speed sensor and a given target rotational speed, for  
feedback control of said air pressure, characterized in that:

15       said controller is provided with a steady value computing  
means adapted to compute a necessary value of electrical  
quantity as a steady value against given settings in arbitrary  
target rotational speed and paint discharge rate for driving  
said air motor steadily in the vicinity of said given target  
20 rotational speed and at said paint discharge rate;

      when either said target rotational speed or said paint  
discharge rate is to be changed, said controller being adapted  
to compute a new steady value on the basis of said changed

target rotational speed and paint discharge rate by the use of said steady value computing means, and to output to said electropneumatic converter an electrical quantity on the basis of the freshly computed steady value.

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2. A rotary atomizing head type coating machine as defined in claim 1, wherein said steady value computation means is adapted to compute a steady value of said electrical quantity on the basis of coefficient of viscosity and specific gravity of paint in addition to said target rotational speed and paint discharge rate.

3. A rotary atomizing head type coating machine as defined in claim 1, wherein said controller is adapted to output to said electropneumatic converter an electrical quantity for an air pressure higher than that of said steady value when said target rotational speed is to be changed to a higher speed, for rotating said air motor at a speed higher than a newly set target rotational speed, and an electrical quantity for an air pressure lower than that of said steady value when said target rotational speed is to be changed to a lower speed, for rotating said air motor at a speed lower than a newly set target rotational speed.

4. A rotary atomizing head type coating machine as defined in claim 3, wherein said controller is adapted to go to feedback control on the basis of said differential in rotational speed, after said detected rotational speed has  
5 reached said target rotational speed.

5. A rotary atomizing head type coating machine as defined in claim 1, wherein at the time of suspending paint supply, said controller is adapted to preset a target  
10 rotational speed at the same value as a target rotational speed to be set upon restarting paint supply.

6. A rotary atomizing head type coating machine as defined in claim 1, wherein said controller is adapted to  
15 increase said paint discharge rate as well as said target rotational speed at the time of coating a broad surface area of a work piece, and to decrease said paint discharge rate as well as said target rotational speed at the time of coating a narrow surface area of a work piece.